

## Abstract

### Methods and Apparatus for Reducing Signal Degradation

A single frequency relay station receives a signal from a master station, and retransmits it. Before retransmitting the signal, the relay station uses a digital filter to subtract from the signal components which arise from multipath interference and coupling interference. The coefficients used by the digital filter are derived from characteristics of the multipath interference and the overall transfer function of the relay station. These are derived by turning off the retransmission, so that the multipath interference can be estimated from the received signal, and commencing the retransmission again, to determine the transfer function. A simplified inverse fast Fourier transform is used to simplify the calculations.

Fig. 2